

CALIFORNIA WATER PLAN UPDATE 2018

Joint California Water Plan Update 2018 and CWEMF Sustainability Outlook, Indicators and Data Workshop

Draft Meeting Notes

June 28, 2017

9:30 a.m. to 3:15 p.m.

Stantec Offices, 3301 C Street Suite 1900, Sacramento, CA 95816

CONTENTS	
ACTION ITEMS	2
WATER RELATED ABBREVIATIONS AND ACRONYMS	3
DISCUSSION ITEMS.....	3
Introductory Remarks	3
Context for Workshop.....	4
Chapter 2.....	5
Timeframes	6
Sustainability Assessment	6
Public Health and Safety Sustainability Indicators.....	7
Ecosystem Vitality Sustainability Indicators	9
Healthy Economy Sustainability Indicators	11
Opportunities for Enriching Experiences Sustainability Indicators	15
Next Steps.....	16
Closing Remarks and Adjourn	16
ATTACHMENT A - Attendance.....	17

ABSTRACT

The California Department of Water Resources (DWR) teamed up with California Water and Environmental Modeling Forum (CWEMF) to consider a working draft text and concepts related to sustainability indicators and data for use in Chapter 2, Sustainability Outlook, of California Water Plan Update 2018 (Update 2018). CWEMF serves as a technical advisory body for the Water Plan.

During the session, Update 2018 presenters discussed the structural and contextual goals for sustainability based on the following definition:

“Sustainability is an ongoing, resilient, and dynamic balance among societal values: public health and safety, healthy economy, ecosystem vitality, and opportunities for enriching experiences.”

They then affirmed the relevance of Update 2018, both today and tomorrow, and considered Chapter 2 specifically. The goal was to receive input and recommendations as well as identify available data platforms that can be used as metrics for measuring sustainability and to refine potential sustainability indicators. A workshop workbook guided discussion and participants offered clarifying questions and

recommendations relevant to indicators identified for each societal goal. The input from CWEMF was greatly appreciated and DWR thanked the participants for their time and gracious sharing of expertise.

ACTION ITEMS

#	Item
DWR to:	
1.	Post PowerPoint presentation slides
2.	Follow up with Dave Sapsis, Cal Fire to get list of fire suppression indicators
3.	Contact Elizabeth Patterson for wording structure on ecosystem vitality intended outcome relating to sustainability in watershed and ecosystems

WATER RELATED ABBREVIATIONS AND ACRONYMS

DWR	California Department of Water Resources
CASGEM	California Statewide Groundwater Elevation Monitoring
CWEMF	California Water and Environmental Modeling Forum
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
GRACE	Gravity Recovery & Climate Experiment
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
NASA	National Aeronautics and Space Administration
SEEA-Water	System of Environmental-Economic Accounts for Water
SGMA	Sustainable Groundwater Management Act
SWRCB	State Water Resources Control Board
Update 2018	California Water Plan Update 2018

DISCUSSION ITEMS

Introductory Remarks

Lisa Beutler, facilitator, Stantec called the session to order and provided the expectations for the workshop. She then introduced Shyamal Chowdhury, the program chair of the California Water and Environmental Modeling Forum (CWEMF). Shyamal explained the mission of CWEMF is to increase the usefulness of models for analyzing California's water-related problems. Formed in 1994, CWEMF accomplishes this mission by:

- Facilitating an open exchange of information on California water issues.
- Resolving technical disagreements in a non-adversarial setting.
- Ensuring that technical work continues to take into account the needs of stakeholders and decision makers.

Shyamal noted that CWEMF also serves an important role as a technical advisory body for Update 2018.

Lew Moeller and Tom Filler of DWR provided introductory remarks on the role of the California Water Plan historically and into the future. Lew explained California water managers are facing many challenges related to:

- Infrastructure.
- Efficient and aligned governance.
- Regulatory alignment.

- Leadership and capacity building .
- Funding .

He explained that Update 2018 would look at these challenges and offer ways to address these by incorporating sustainability principles into this, and future, Water Plan Updates. Tom stated that the workshop would specifically focus on Update 2018, Chapter 2, the Sustainability Outlook. This chapter offers an assessment of the current state of California water sustainability using a series of indicators. Tom then stated the objectives for the workshop as:

- Provide the full planning context and planning logic of Water Plan Update 2018.
- Consider the proposed water management outcomes by societal values.
- Receive assessment of the listed indicators.
- Stakeholder validation of the general indicator framework.

The specific goal of the workshop was to clarify and identify metrics for measurements of the sustainability indicators. Tom noted that the Water Plan team had developed a working draft list of indicators and metrics as a starting point, but hoped to work with CWEMF to advance the direction of the indicators and metrics, and have them become more effective and clear.

Lisa then provided a quick review of the session agenda and invited the group to make self-introductions highlighting their individual areas of expertise.

Context for Workshop

Lewis Moeller, Water Plan program manager, DWR, provided an overview of the content in Update 2018. He stated the main goal for Update 2018 is to advance sustainability principles and offered a working sustainability definition:

“Sustainability is an ongoing, resilient, and dynamic balance among societal values: public health and safety, healthy economy, ecosystem vitality, and opportunities for enriching experiences.”

He summarized the interrelationships of the five Water Plan Chapters.

Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5
Envisioning Sustainable Water Resources Management	Sustainability Outlook	Recommended Actions to Support Long-Term Sustainability	Funding Plan	Implementation Plan
Sets out the vision for California Water Management	Assesses the current state of management relative to the vision	Describes things that can be done to achieve the vision and mitigate and address trends that are adverse to sustainability	Describes the approach to funding needed action	Outlines the actions needed to achieve the recommendations

Low presented a variety of different graphics used to show the current state of water sustainability in California and walked through a provided brochure. He noted the importance of recognizing past water

management actions but explained they were mostly reactive rather than proactively designed for long-term sustainability. He emphasized this by describing the current state as a three “Rs” equation:

$$\text{Repair} + \text{Ration} + \text{Regulate} \neq \text{Sustainability}$$

By making a shift, from a reactive to proactive approach, and by broadening the overall scope of water planning to a system wide view that incorporates local, regional, and state levels, the possibility of long-term sustainability can become more attainable.

He explained the ultimate goal was for Update 2018 to:

- Set policy level priorities.
- Focus energy and resources.
- Strengthen operations.
- Ensure that water managers are working toward common goals.
- Establish agreement around intended water management outcomes.
- Assess and adjust direction in response to a changing environment.

Sustainability Indicators Framework

Lew introduced the Update 2018 sustainability framework. The first step in the framework is defining water sustainability in the context of four societal values:

- Public health and safety.
- Healthy economy.
- Ecosystem vitality.
- Opportunities for enriching experiences.

For each societal value there is a list of intended outcomes and their corresponding indicators and metrics. The next step is to evaluate the current status of water sustainability using those indicators and metrics. Gaps are then identified. Update 2018 includes recommendations for actions to fill the gaps. The working draft Chapter 2 identifies potential indicators, metrics, and data source.

Lew described the challenge of tracking the progress of sustainability with respect to the needs and demands of society as what is valued, can change over time. He concluded by stating some of the limitations the team faced such as data adequacy, statewide scale, and conceptual vs definitive analysis on water management.

Chapter 2

Tom continued Lew’s discussion on the framework for Chapter 2. He highlighted the operational definition of sustainability, water management conditions, actionable recommendations, and funding sources and the implementations needed. He stated the workshop was designed to have the group:

- Help identifying needed indicators.
- Offer ideas for future evaluation and in California Water Plan Update 2023.

- Development concepts for regional scaling.

Tom noted the indicators must be specific, measurable, quantitative, and repeatable in order for the comparisons to show identifiable trends. Tom emphasized his hope that the adjusted approach from reactive to proactive will show beneficial results and effects.

The Water Plan team opened the floor to the group for comments questions. Clarification was offered for the following:

Timeframes

Previous Water Plan updates have been focused on a long-term vision. Participants wondered how the new proposed framework would work related to timeframes. The Update 2018 team reiterated that the recommended actions and indicators will lead to progress over the next five years and that the results are going to take time to see change. The structure of the indicators is focused on sustainability that lead to the formulation of the recommended actions that will be offered in Chapter 3 (this workshop was about Chapter 2). Regardless of whether Update 2018 recommendations are implemented, the sustainability indicators will help track the water management performance over time.

Sustainability Assessment

The participants wanted to know more about how the current sustainability assessment (as presented by Lew) related to how the current state will be used as a baseline to prioritize actions and further develop recommendations.

Lew explained that in the past, California Water Plan updates were organized as a checklist of actions that may have had different time periods. He said the focus was on actions completed rather than the results those actions delivered. Advancing to present day, the sustainability assessment will identify the existing status and trends and use them to reassess water management and how it can be improved for the future. The assessment will be used to determine if the implemented actions are leading to the desired effects, as well as track progress.

Tom concluded by stating DWR's hope that the assessment can help to create a better alignment between agencies, where people can evaluate the same indicators and work in concert for proper water resource management.

Discussion

After a review of the recommendations the group was asked their general impressions of the indicators, any red flags or suggested improvements they had, if any, for the identified sustainability indicators and metrics. Some suggestions from the group included:

1. *Regarding the desired future state* - Change the use of the word adequate to reliable.
2. *Regarding timeframes for assessment* - Potentially increase the time period for modeling to show more trends.

3. *Regarding geographical scaling* - Break down the watershed and groundwater basins to isolate the effect of hydrological draining.
4. *Related to one of the trend graphics* -
 - a.) Clarify the direction of change of the blue arrows in the chart that shows the four columns of the societal values.
 - b.) Create a visual that shows the integration of the holistic idea of sustainability that includes the societal values.
5. *Regarding limitations around repeatable versus replicating* – Use one term. The term multi-objective also needs clarification,

Public Health and Safety Sustainability Indicators

Jose Alarcon, DWR, provided a brief summary of the intended outcomes under the societal value, *public health and safety*. He explained that this section primarily focused on desired outcomes, indicators, and metrics for water supply, water quality, and water safety. The first intended outcome for this theme was an adequate water supply for domestic needs, sanitation, and fire suppression. The identified indicators included the:

- Number and percentage of communities without adequate domestic water supplies.
- Population and percentage of population without access to adequate sanitation.
- Metric related to fire suppression.
- Number of dry wells.
- Number of water bottles distributed.
- Number of private wells.

Jose clarified that the State Water Resources Control Board has identified systems that use contaminated water and how there is a lot of overlap between the indicators and the intended outcomes. He also noted some of the items could be placed in other categories (such as the category on economy). He asked that if the participants felt an indicator fit better in a different placement they should speak up.

Tom clarified that the outcomes, indicators, and metrics were offered at a statewide, broad, conceptual scale. He stated that moving forward a more localized assessment, and a different set of priorities and outcomes, may be created but they would tie into the funding mechanisms on a larger scale. He also reiterated that the purposes for doing this in Update 2018 is to start the process on a statewide level and then refine it for local levels.

Discussion

After a review of the proposed outcomes and indicators, the group was asked their general impressions, and for any red flags or improvements they had for the overall section on public health and safety. Some suggestions from the group included:

1. Look for a changeable metric that can show improvement of dry well measurements.
2. Distribute a county-wide survey that offers assistance on dry wells for the future.
3. Identify if there is an urban water reliable population projection.

4. Numbers of sanitation centers could be used as an indicator.
5. It is as necessary to look for indicators that we can change, such as things that describe the current state and things that can describe the future.
6. Suggestion that the number of these indicators does not accurately represent the severity of the issue.
 - a.) It is hard to show scale and size.
 - b.) If used, provide a specific clarification on size for each intended outcome with numbers.
7. Determine a way to incorporate uncertainty factors.
8. Some suggested there may be a better metric than distributed water bottles.

Jose then focused on the section of intended outcomes related to reducing the number of people exposed to waterborne health threats such as contaminants or infectious agents. The proposed indicators of that outcome include the:

- Number of public water systems not in compliance with drinking water standards.
- Number of communities that rely on contaminated groundwater for water supply.
- Metric related to fire suppression.
- Contact exposure to algae, mercury levels in fish.
- Number of water bodies on the U.S. Environmental Protection Agency (EPA) impaired water bodies list. Number of water bodies that have more than 5 total maximum daily loads.

One of the Update 2018 team members stated that for the development of the sustainability outlook, the simplest, most quantifiable and reliable data is what is needed. After a longer period of time, data can be analyzed and more meaningful metrics can be created. One person clarified that there was a need to look at process and actions, not just the current status of the indicator.

Discussion

After review of the outcome and indicators, the group was asked their general impressions, and for any red flags or suggested improvements they had. Comments from the group included:

1. Clarification is needed on the overlap between contaminated water sources and communities that rely solely on groundwater supply – specifically communities that rely on contaminated groundwater supply.
2. A measurement is needed to show population by units of different hydrologic regions.
3. Recommend indicating how many communities are below the poverty level to respect social justice issues.
 - a.) some communities may have the ability to pay to use higher quality water

Jose then reviewed the third intended outcome which is a reduced loss of life, injuries, and health risks caused from extreme hydrologic conditions, catastrophic events, and/or system failures (including infrastructure). The identified indicators include the:

- Number of communities that do not have hazard mitigation plans, county emergency operations plans, emergency response plans, and/or evacuation plans in place.

- Number of communities that do not have drought preparedness plans or, in the future, water shortage contingency plans.
- Number of days per year that Central Valley Project and State Water Project facilities are out of service.
- Number of urban areas without state-mandated urban level of flood protection.
- Population within floodplains (with equal to, or greater than, a 1 percent chance of flooding in any given year).
- Number of small systems on fractured-rock groundwater sources.

Discussion

After a review of the outcome and indicators, the group was asked their general impressions and for any red flags or improvements they had. Some suggestions from the group included:

1. Make distinction for unplanned versus planned times for out of service. This could be for numbers of days per year.
2. With regards to population within floodplains – population data can be hard to get, switch to households and businesses because it is more accessible.
 - a.) Population data can be provided by census data plus California Department of Finance adjustments.
 - b.) The Federal Emergency Management Agency (FEMA) can provide the number insured.
3. Number of deaths should be included in this section.
4. Make distinction between loss of life based on flooding versus non-flooding deaths.
 - a.) Degree of severity needs to be overlaid.
5. Use LandScan Global Population Database, a unique high-resolution tool developed and maintained by the Oak Ridge National Laboratory.¹
6. Address the idea of aging infrastructure and red flag how it its lifespan trends toward an unsustainable future.
7. Take into account the repeatability of data.

Jose finished his remarks by thanking the participants for their input and support. The group unanimously agreed that there needs to be improvement in modeling for this societal value.

Ecosystem Vitality Sustainability Indicators

Ted Frink, DWR, led the section on the sustainability indicators that correspond to the societal value, *ecosystem vitality*. Ted pointed to the process circle from the provided brochure to emphasize the idea of dynamic systems, suggesting that instead of circle, it is a spiral of time, a rate that measures the current performance. He covered the various policy considerations, touching on the idea of full life-cycle cost to understand the overall relationships of money and outcome. Ted continued and described the first intended outcome, to maintain and increase ecosystem and native species distributions in California while sustaining and enhancing species abundance and richness. The identified indicator for this outcome was:

¹ <http://www.csm.ornl.gov/PR/PR2007/OR-01-03-07.html>

- Native Fish Conservation and Status Index²

Discussion

After a review of the recommendations the group was asked their general impressions and for any red flags or improvements they had. Some suggestions from the group included:

1. Need to capture an ecosystem feature that can be identified statewide.
2. Determine if a measure of invasive species should be included.
 - a.) Invasive species can impact water quality – develop a tracking mechanism for some information in this area.
3. Identify if there is a metric that can be used to capture macro-ecosystem values
4. Redefine index repeatability here because some things may not be repeatable.

Ted followed by introducing the intended outcome, maintain and improve ecological conditions vital for sustaining ecosystems in California. The identified indicators are:

- Degree of aquatic fragmentation.
- Water temperature, chemistry, and pollutant/nutrient concentrations and dynamics.
- Water quantity and availability.
- Number of fish rescues and fisheries closed to recreational and commercial activity.

Ted added that the Sustainable Groundwater Management Act (SGMA) requires management of groundwater basins and there may be some language related to SGMA that should be added. He continued by stating the need for an assessment to characterize the conditions and how there is a current basis to start, but that a gap exists and there is need to capture and request data.

Discussion

After a review of the outcome and indicators the group was asked their general impressions and for any red flags or improvements they had. Some suggestions from the group included:

1. Wetlands could be used as an indicator.
 - a.) The United States Army Corps of Engineers has a database.
2. Suggestion to combine or specify the first two indicators to reduce redundancies.
3. Define relative flow versus unimpaired flow to track progress.
 - a.) Important to note volume, frequency, and duration of flow.
4. Identify the barriers that exist between people and ecosystems.
5. Reference the Delta Stewardship Council for performance metrics about ecological hotspots.

The third intended outcome under this societal value was to maintain and improve ecosystem functions and processes vital for sustaining ecosystems in California. The identified indicators include:

² This is an existing composite data set

- California Stream Conditions Index³
- California Integrated Assessment of Watershed Health⁴

Discussion

After a review of the recommendations the group was asked for their general impressions of the indicators, red flags or improvements they had, if any, for the identified sustainability indicators and metrics. Some suggestions from the group included:

1. Clarify the repeatability of the stream index and how it gets a measure close to ideal condition and diversity.
2. Suggestion to find and include an index with constant measurement with relation to the Delta.
3. Suggestion to create the following intended outcome, “achieved designated beneficial uses for water bodies throughout the state.”
 - a.) Measure number of impaired water bodies.
 - b.) Measure number of fish consumption advisories.
 - c.) Measure number of swim advisories.
4. Comment that there is deficiency with focusing solely on fisheries.
5. Obtain more input and analysis about use of floodplains, level of inundation.

One member from the audience commented on the reality of managing the watershed, as is done now, for specific flows and how that impact. To get sustainability, the watershed must properly function. To have a healthy ecosystem, there needs to be proper water management systems. Another challenge the group considered was how climate change plays a role and how it is anticipated to change water systems in the future, thus impacting further analysis.

Healthy Economy Sustainability Indicators

Megan Fidell, DWR, provided an overview on the intended outcomes for the societal value, *healthy economy*, and explained how managers work to eliminate unsustainable outcomes. She explained that productive water uses are based on a reliable source. She noted that people expect they will always have water available for some cost. She followed by stating the first healthy economy intended outcome is focused on reliable water supplies of suitable quality for a variety of productive uses, and productive water uses are based on a reliable supply. The identified indicators for this outcome included:

- Delivery reliability for the State Water Project and the Central Valley Project.
- Changes in water use (agricultural, urban, industrial, environmental, etc.).
- Percentage of communities showing a neutral (or excess) water balance in their approved urban water management plan and/or agricultural water management plan.
- Real cost of water to end user (e.g., greenhouse gas production and energy consumption relative to water production).
- Compare gallons per capita per day in each county to national average.

³ Ibid

⁴ Ibid

- Drought carryover storage in reservoirs.
- Distribution system leaks.
- Number of groundwater basins with stable or recovering groundwater levels.
- Groundwater levels and water quality.
- Water available for recharge, groundwater recharge maps needed.
- Change in groundwater storage.
- Local groundwater management plans/groundwater sustainability plans in and out of compliance with SGMA.

Discussion

After a review of the recommendations the group was asked their general impressions, and for any red flags or improvements. Some suggestions from the group included:

1. Add a section about efficiency that:
 - a.) Addresses implications of regional management.
 - b.) Describes local and regional levels.
2. Discuss a reconciliation process between local and regional agencies with regards to groundwater sustainability.
3. Establish a process to track the outcomes produced by groundwater sustainability agencies (GSAs) by the varying timeframes they have been given to develop groundwater sustainability plans (GSPs). This should provide a nexus to a healthy economy when the economy is dependent on groundwater.
4. Be more specific about the regulatory oversight with GSAs.
 - a.) Include metrics based on the designated priority versus non-priority basins outside of the requirements of SGMA.
5. Change gallons to per capita per day (note if this is an intended outcome related to municipal services).
 - a.) Information is available from validated water loss audits.
 - b.) National average does not seem to be a useful statistic.
 - c.) Addition data source is the Gravity Recovery & Climate Experiment (GRACE) data from the National Aeronautics and Space Administration's (NASA's) Jet Propulsion Laboratory in Pasadena.
 - d.) Source can be from urban water management plan and water loss audits.
6. Look at state water board planning for sources of cost of water.
7. Identify a metric that can be used to identify evolving water markets in part of SGMA (driving affordability and availability of water).
8. The System of Environmental-Economic Accounts for Water (SEEA-Water) can be used to report changes in water use.⁵
9. Restructure the indicators that focus on the exact number of things to more of a focus on the outcomes.
10. Create a better balance between water supply reliability and management.
11. Focus on trend analysis of groundwater management

⁵ <https://unstats.un.org/unsd/envaccounting/seeaw/>

The DWR team clarified that they expect reports by October 1 on related statewide performance of water use efficiency. They also stated that data from California Statewide Groundwater Elevation Monitoring (CASGEM) will be used to monitor groundwater basins.

Megan continued by focusing on the second set of intended outcomes, the consideration of economic risks and rewards on floodplains, rivers, and coastal areas. She clarified this outcome addressed developed economic use of water in these areas and stated the need to for these activities to provide more economic good than the costs of protecting them. The identified indicators are:

- Acreage of new lands developed within floodplains, along river corridors, and in coastal areas at risk of sea-level rise.
- Number of sea-level rise preparedness assessments completed per Assembly Bill 691.6
- Acres of riparian habitat.
- Acres of connected floodplain habitat.
- Improvements to flood safety (reduced flood insurance rates/home value changes/avoided recovery and clean-up costs)

Discussion

After a review of the recommendations the group was asked their general impressions of the indicators, red flags or improvements they had, if any, for the identified sustainability indicators and metrics. Some suggestions from the group included:

1. Irrigated acres could be used as a metric or types of irrigation and permitting crops.
2. Restructure indicator of reduced flood insurance.
 - a.) Indicate economic flood safety.
3. Use the land-use tool from DWR that shows operations and maintenance for a metric.

Megan continued with the next set of indicators under the intended outcome that provides more benefits from economics activities, including from reduced costs to provide a given level of service (including transaction costs). She stated that in many cases permitting costs are rising too high for the cost of a project to be attainable. She reiterated that there needs to be a way to streamline those costs to allow for more projects to do good. She stated the challenges that by lowering the cost for developing water supply and looking for higher ratios of benefits can lead to negative externalities. The identified indicators for this outcome include:

- Public and legislative support for water measures.
- Domestic water rates. Compare water rates to the national average water rates and compare water rates against household.
- Compare gross domestic product to gallons per capita per day.
- Suggestion to add the number of state facilities that are beyond design life.
- Suggestion to add the book value of assets in water infrastructure and replacement costs.

⁶ Assembly Bill No. 691, CHAPTER 592, An act to add Section 6311.5 to the Public Resources Code, relating to state lands. [Approved by Governor on October 05, 2013. Filed with Secretary of State, on October 05, 2013.]

- Suggestion to add the Federal Energy Regulatory Commission licenses and number of renewals (50-year licenses).
- Land use change – agriculture/urban/industrial.
- Water transfers (water moving to higher-valued uses).
- Social safety (water used for industry instead of agriculture).
- Gross domestic product / consumptive use.
- Consumer Price Index versus aggregated cost of service (all agencies).
- Change in end use (agriculture, municipal, industrial), mapped.
- 5-year rolling average of hydropower generation versus total generated.

Discussion

After a review of the outcome and indicators the group was asked their general impressions and for any red flags or improvements they had. Some suggestions from the group included:

1. Reword the term “transaction cost” to create a clearer idea and avoid misinterpretation.
2. Define commodity crops versus food crops.
 - a.) Note: UC Davis has some studies around food security relating to food commodity.
3. Reconsider the meaning of “compare annual allocations.”
4. Add open space to land use change.
5. Clarify the last intended outcome as related to average hydropower and redefine to make more specific.
6. Information is available from the EPA and the National Conference of Mayor’s Regulatory Assessments.
7. Clarify “public and legislative support.”
8. Look at Department of Homeland Security’s nexus between food security and water – could become a potential indicator.

The last intended outcome under this societal value is to reduce the likelihood or occurrence of significant social disruption following a disaster (excludes drought). Megan touched on the idea of economic disruption and ways to ensure that the economy doesn’t collapse. The identified indicators include:

- Value of assets within floodplains (with equal to or greater than a 1 percent chance of flooding in any given year).
- Number (cumulative) of water-related emergency declarations over time.
- Lost business income from emergency declarations.

Discussion

After a review of the outcome and indicators the group was asked their general impressions and for any red flags or suggested improvements they had. Some suggestions from the group included:

1. Change to 200-year flood plain (0.5 percent chance).

2. FEMA has available flood information.
3. Drought carryover storage can be found in the California Data Exchange Center (DWR source).

Opportunities for Enriching Experiences Sustainability Indicators

Emily Alejandrino, DWR, initiated the discussion on *opportunities for enriching experiences*. She mentioned that this area is the less developed than other areas, so the team would appreciate input and feedback. Given it may have been the first opportunity for the participants to consider this particular type of data set, Lisa requested that group take time to review this section after the workshop and provide written feedback.

Emily stated the first intended outcome is to preserve or enhance culturally or historically significant sites and communities, including continued and enhanced access to water and land used for sacred ceremonies or practices. The identified indicators include:

- Number of Native American tribal communities without access to adequate, safe water supplies.
- Number of qualified historical buildings or historic places at risk of losing reliable water supply, or with equal to or greater than, a 1 percent chance of being flooded in any given year.

Discussion

After a review of the outcome and indicators, the group was asked their general impressions and for any red flags or suggestions they had. Some comments from the group included:

1. Communicate that the relationship between humans and water is part of sustainability.
2. Identify the values of farming communities – intrinsic values that come from the watershed.
3. Mention how sustainable funding directly relates to providing opportunities for enriching communities.
4. In the indicators, make sure that everyone at all economic levels can have these experiences.

The second intended outcome under this societal value is to preserve and increase natural areas with aesthetic or intrinsic value (open space). The identified indicators include:

- Statewide open space (acreage).
- Conserved lands adjacent to California waterways (acreage).
- Land Conservation (Williamson) Act enrollment (acreage).

The third set of intended outcomes was related to the idea to continue and enhance access to resources that support education and learning. The identified indicators include:

- Number of school districts using water and environmental curriculum in K-12 programs.
- Number of students enrolled in water and environmental resources management programs within the University of California and California State University systems.

The last set of intended outcomes was to continue or enhance recreational opportunities in waterways, reservoirs, or natural and open spaces. The identified indicators include:

- Visitor user days at water-related State parks (rivers, coastal, water bodies).

- Number of communities without access to water-related State lands, parks, or resources.

Discussion

After a review, group members were invited to jot down comments prior to leaving or after the workshop. Group workbooks were collected so comments could be reviewed.

Next Steps

Tom and Lewis outlined next steps.

- Any interested member is encouraged to share their workbook comments with colleagues (as an internal product) and send answer sheets or comments to Tom Filler (thomas.filler@water.ca.gov) as soon as possible.
- Upcoming meetings and workshops:
 - July 19 – Workshop on Sustainable Funding, Bonderson Bld., 901 P Street, Sacramento, CA, Hearing Room.
 - July 25 – Workshop on Sustainability Indicators, Bonderson Bld., 901 P Street, Sacramento, CA 95814, Hearing Room.
 - August 23 – Public Advisory Committee, Health Services Training Center, Sacramento, CA.
 - September 27– Plenary Meeting, McClellan Business Park, Wildland Fire Conference Center.
- Public Review Draft Release Date: February 2018.

Closing Remarks and Adjourn

Shyamal closed the workshop by asking that participants complete an anonymous evaluation. He thanked the DWR team and the audience. He appreciated everyone's powerful insights and he expressed hope that everyone left feeling enlightened. He stated that CWEMF was very thankful to be included in review of Update 2018 and is looking forward to the continued partnership. He thanked Stantec for providing the workshop venue and help with the organizational aspect of the workbooks.

The group was thanked for their recommendations, involvement, feedback, and their continuing support of the Water Plan process. A public announcement was made that if anyone is looking to get involved in the future, they should subscribe to the weekly e news for the California Water Plan. The meeting was adjourned.

ATTACHMENT A - Attendance

Shyamal Chowdhury, Wood Rogers, Inc.

Hong Lin, DWR

Carolyn Cook, CA Department of Food and Agriculture

Elizabeth Patterson, DWR

Dave Sapsis, Cal Fire

David Ford, David Ford Consulting Engineers, Inc.

Maury Roos, DWR

Larry Ernst , Wood Rogers, Inc.

Marina Brand, Delta Stewardship Council, Delta Science Program

Samso Haile-Selassie, DWR

Reza Namvar, Woodard & Curran

Sercan Cyhan, UC Davis Hydrologic Research Lab

Emmanuel Asinas, DWR

Water Plan, Chapter 2 Presentation Team (DWR)

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